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10/708,901	03/30/2004	Sridhar Sankaranarayanan	H0005782	2900

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HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
ORTIZ RODRIGUEZ, CARLOS R	
ART UNIT	PAPER NUMBER
2123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/708,901	SANKARANARAYANAN, SRIDHAR	
	Examiner	Art Unit	
	CARLOS ORTIZ RODRIGUEZ	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-11 and 14-20* is/are rejected.

7)☒ Claim(s) *1,5,6,8,12,13,14,17,18,19,20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are pending.

2. Claims 19 and 20 are new.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/22/08 has been entered.

Response to Arguments

4. Applicant's arguments filed 8/22/08 have been fully considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are primarily focused on the newly amended claims. Please note below a new rejection under 35 U.S.C. 103(a) addressing the limitation introduced in the newly amended claims.

Specification

5. The amendment to the Specification including the Abstract has been received and entered.

Allowable Subject Matter

6. Claims 5, 6, 12, 13 and 18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim. Also note that claims 5, 6, 12, 13 and 18 should be rewritten to overcome the objection(s) to informalities and the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

7. The following is a statement of reasons for the indication of allowable subject matter:

While Leonard et al. (U.S. Patent No. 3,826,904) discloses a blender a plurality of outlets, wherein each of said plurality of outlets provides a corresponding one of said plurality of components according to a corresponding flow rate for blending by said blender, a plurality of source controllers, wherein each of said plurality of source controllers controls the flow rate of a corresponding one of said plurality of outlets, and a blend controller determining the flow rate for each of said plurality of source controllers, Kwak (U.S. Patent No. 6,866,830) discloses that plurality of target properties can be attained by further blending a plurality of components including a first component from an intermediate blend point which would produce an aggregate volume of a product, and Navani et al. (U.S. Patent No. 7,448,046) discloses receiving data indicating whether a first component is available from start of blending, said data also indicating a time instance at which said first component is available.

None of these references taken either alone or in combination with the prior art of record disclose:

(Claim 5) “a method of blending including a determining step, wherein said determining comprises: computing using said digital processing system a plurality of ideal volumes corresponding to said plurality of components which would be blended if said first component were to be available during entire blend duration, wherein said plurality of ideal volumes includes a first ideal volume for said first component; assigning said first ideal volume to a temporary variable; searching whether one or more of said intermediate blend points are feasible with said temporary variable as volume for said first component; if one or more of said intermediate blend points are feasible, said controlling using one of said one or more intermediate blend points to control the flow rates of said plurality of components; and
if any of said intermediate blend points is not feasible, decreasing said temporary variable by an amount and performing said searching”,

(Claim 12) “a computer readable medium storing instructions for determining, wherein said determining comprises: computing a plurality of ideal volumes corresponding to said plurality of components which would be blended if said first component were to be available during entire blend duration, wherein said plurality of ideal volumes includes a first ideal volume for said first component; setting a temporary variable equal to said first ideal volume; finding whether one or more of said intermediate blend points are possible with said temporary variable as volume for said first component; if one or more of said intermediate blend points are possible, using one

of said one or more intermediate blend points to control the flow rates of said plurality of components; and if one or more of said intermediate blend points are not possible, decreasing said temporary variable by an amount and performing said finding", and

(Claim 18) " a manufacturing plant, including a blend controller configured to determine the flow rate for each of a plurality of source controllers and configured to compute a plurality of ideal volumes corresponding to said plurality of components which would be blended if said first component were to be available during entire blend duration, wherein said plurality of ideal volumes includes a first ideal volume for said first component; assign said first ideal volume to a temporary variable;
search whether one or more of said intermediate blend points are feasible with said temporary variable as volume for said first component; if one or more of said intermediate blend points are feasible, said control using one of said one or more intermediate blend points to control the flow rates of said plurality of components; and if any of said intermediate blend points is not feasible, decreasing said temporary variable by an amount and performing said search",

in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicant's invention defines over the prior art of record.

Regarding (Claim 14 Line 17, Claim 17 Line 5 and Claim 18 Line 2), please note that the term "operable to" is a non-positive limitation and would be better if written as "configured to" in order to positively describe the blend controller by what it is and not by its functions.

Claim Objections

8. (Claim 1 Line 4 and Claim 14 Line 4) objected to because of the following informalities: The term “target property” seems to be “target properties” (in plural form) as previously mentioned in the claim. Appropriate correction is required.

9. (Claim 5 Line 10, Claim 12 Line 11 and Claim 18 Line 11) objected to because the term “control flow rates" would better if written as "control the flow rates". Appropriate correction is required.

10. (Claim 8 Line 1) objected to because the term “carrying" would better if written as "storing" in order to clearly specify that the instructions are stored in a computer readable medium. Appropriate correction is required.

11. (Claim 8 Line 9 and Claim 14 Line 8 and Claim 19 line 3) objected to because the term “plurality of properties" would better if written as "plurality of target properties" in order to maintain consistency throughout the claims. Appropriate correction is required.

12. (Claim 17 Line 3-4) objected to because the limitation “a plurality of source controllers control” would be better if written as “*said* plurality of source controllers *controls*” in order to maintain consistency throughout the claims. See Claim 14 Line 14 where it previously mentions the term “a plurality of source controllers”. Also note that the term “control” should be in plural form. Appropriate correction is required

13. (Claim 18 Line 14) objected to because the term “searching" would better if written as "search" in order to maintain consistency throughout the claims. Appropriate correction is required.

14. (Claim 19 Line 8) objected to because the period at the end of the claim is missing. Appropriate correction is required.

15. (Claim 20 Line 5) objected to because the term “is also is used” seems to be “is also used”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, (Claim 17 Line 4 and Claim 18 Line 2) recite the limitation “said digital processing system”. There is insufficient antecedent basis for this limitation in the claim. This limitation seems to be "said blend controller”.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 1-4, 7-11, 14-17 and 19-20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Leonard et al. U.S. Patent No. 3,826,904 (hereinafter Leonard) in view of Navani et al. U.S. Patent No. 7,448,046 (hereinafter Navani).

a. **Regarding claim 1, 8, 14, 19 and 20**, Leonard discloses

a blender (Figure 1, blending tank 1)

a plurality of outlets (Figure 2 and C4 L63-65, see outlets from storage facilities, not shown),

wherein each of said plurality of outlets provides a corresponding one of said plurality of components according to a corresponding flow rate for blending by said blender; a plurality of source controllers, wherein each of said plurality of source controllers controls the flow rate of a corresponding one of said plurality of outlets; and a blend controller determining the flow rate for each of said plurality of source controllers (see Figure 1 and at least C5 and C6)

blending a plurality of components to produce a product having a plurality of target properties (C2 L23-25),

each of said plurality of components impacting one or more of said plurality of target properties (C2 L23-44, see that all components are needed to meet customer's desire)

and at least some of said plurality of target property being impacted by multiple components when blended (C2 L23-44, see that the viscosity is being affected by the multiple components),

receiving in a digital processing system data indicating said plurality of target properties, the manner in which each of said plurality of components impacts any of said plurality of target properties (C11 L1-62),

and an aggregate volume of said product to be produced (C3 L44-47, C11 L4-5, see volume-fraction and quantities);

determining in said digital processing system an intermediate blend point at or after said time instance such that a corresponding intermediate properties combination can be attained at said intermediate blend point by blending only the available ones of said plurality of components (see equations 3-6 and please note that the intermediate blend point is being interpreted as the point when all the components are blended because after all oils are blended it is possible to further blend them with other components)

and controlling flow rates of each of said plurality of components (Fig 1 and C5 L1-14)

to attain said intermediate properties combination at said intermediate blend point, and to attain said plurality of target properties from said intermediate properties combination after said intermediate blend point whereby said product of said aggregate volume is generated by blending said plurality of components (C11 L50-62).

But Leonard fails to clearly specify receiving data indicating whether a first component is available from start of said blending, said received data also indicating a time instance at which said first component is available, said time

instance being after a substantial continuous duration from start of said blending; and if all of said plurality of components, including said first component, are available, computing component volumes of said plurality of components that would produce said product with said plurality of target properties and performing said blending to produce said product whereby said first component is also used from start of blending; and that said plurality of target properties can be attained by further blending said plurality of components including said first component from said intermediate blend point which would produce said aggregate volume of said product; wherein said first component is not available at start of said blending and is designed to enhance a first set of properties comprised in said plurality of properties when blended, wherein said available ones of said plurality of components include a second set of components which when blended enhance said first set of properties, at least some of said second set of components being blended by a higher volume up to said intermediate blend point compared to if said first component were to be available from the start of said blending.

However, Navani discloses receiving data indicating whether a first component is available from start of blending, said received data also indicating a time instance at which said first component is available (C5 L54-56), said time instance being after a substantial continuous duration from start of said blending (C5 L54-56, C13 L49-61, C15 L51-57 and C16 L3-15, please note that Navani discloses delivering intermediate feedstock and products to be blended with the

intermediate feedstock); and if all of a plurality of components, including said first component, are available, computing component volumes of said plurality of components that would produce a product with a plurality of target properties and performing said blending to produce said product whereby said first component is also used from start of blending; and that said plurality of target properties can be attained by further blending said plurality of components including said first component from an intermediate blend point which would produce an aggregate volume of said product (C15 L13-18, C15 L45-67, C16 L1-32 and C17 L10-26); wherein said first component is not available at start of said blending and is designed to enhance a first set of properties comprised in said plurality of properties when blended (C17 L50-67 and C18), wherein said available ones of said plurality of components include a second set of components which when blended enhance said first set of properties, at least some of said second set of components being blended by a higher volume up to said intermediate blend point compared to if said first component were to be available from the start of said blending (C20 L35-57).

Leonard and Navani are analogous art because they are from the same field of endeavor. They both relate to oil refining.

Therefore at time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above teachings disclosed by Leonard and combining it with the teachings disclosed by Navani.

One of ordinary skill in the art would have been motivated to do this modification in order to provide a more efficient and effective workflow management and real-time access to data as suggested by Navani (see for example, C3 L5-8).

b. **Regarding claim 2, 9, 15**, the combination of Leonard and Navani discloses all the limitations of the base claims as outlined above.

Navani further discloses wherein said determining determines said intermediate blend point to meet a desired criteria (C13 L49-61 and C15 L38-45, see for example refining crude oil into intermediate feedstocks, and further into finished crude products).

c. **Regarding claim 3, 10, 16**, the combination of Leonard and Navani discloses all the limitations of the base claims as outlined above.

Leonard further discloses wherein said desired criteria comprises minimizing total cost of said plurality of components blended to produce said product (Abstract L8-11).

d. **Regarding claim 4, 11, 17**, the combination of Leonard and Navani discloses all the limitations of the base claims as outlined above.

Leonard further discloses wherein each of said plurality of components are provided for blending by a corresponding plurality of outlets (Figure 1 and C4

L63-65), wherein each of a plurality of source controllers control the flow rate of a corresponding one of said plurality of outlets (Figure 1 and C5 L15-23); and

determining in said digital processing system each of a first plurality flow rates for a corresponding one of each of said plurality of components before said intermediate blend point such that said intermediate properties combination is attained for said product at said intermediate blend point; and wherein said controlling is performed by operating said plurality of outlets according to said first plurality of flow rates before said intermediate blend point (Fig 1 and C5 L1-14); determining in a digital processing system flow rates such that a plurality of target properties are attained for a product, and controlling flow rates by operating a plurality of outlets (C4 L63-69 and C5 L1-52).

Navani further discloses that after an intermediate blend point a plurality of target properties are attained for a product (C13 L49-61, C14 L31-55, C15 L45-67 and C16 L55-60).

e. **Regarding claim 7**, the combination of Leonard and Navani discloses all the limitations of the base claims as outlined above.

Leonard implicitly discloses wherein said method is performed in an oil refinery (C1 L49-59 and C2 L23-43, see for example a system for refining oil).

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766. The examiner can normally be reached on Mon-Fri 10:00 am- 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlos Ortiz-Rodriguez
Patent Examiner
Art Unit 2123

November 14, 2008

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123